

Notice of Allowability

Application No.

10/563,087

Applicant(s)

SUMIYA ET AL.

Examiner

SEYED M MALEKZADEH

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment after non-final rejection filed on 10/05/2007.
2. ☒ The allowed claim(s) is/are 2-4 and 20.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>December 19/2007</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions, which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

Group I, claims 1-4 and 20 are drawn to a crucible with an inner surface roughness of no greater than $R_{max} 6.4s$ and also the crucible include a curvature radius of at least $1/10$ of inner diameter within the wall surface of the starting material carrying section.

Group II, claims 5-8 and 21-23 are drawn to a crucible for growth of a single crystal wherein the seed carrying section of the crucible is set in the range of between 95° and 150° , and wherein the contact angle between the crucible inner surface and water droplets is no greater than 100° .

The inventions listed as groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Claims 1-4 and 20 claim a crucible for growth of a single crystal which the crucible include an inner surface roughness of no greater than $R_{max} 6.4s$ with a curvature radius of at least $1/10$ of inner diameter within the wall surface of the starting material carrying section, wherein claims 5-8 and 21-23 are drawn to a different crucible which is distinct from the claimed crucible in claims 1-4 and 20 and group inventions I

and II lack same or corresponding special technical feature. (For claims 1-4 and 20, see Kawase et al. (US 5,830,269); and for claims 5-8 and 21-23, see Ejim (US 4,946,544))

During a telephone conversation with Mr. Alan Schiavelli on December 19, 2007 a provisional election was made without traverse to prosecute the Group invention I, claims 1-4 and 20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 5-8 and 21-23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Alan Schiavelli on December 19, 2007.

The application has been amended as follows:

Abstract has been amended to be a single paragraph.

Claim 1 is cancelled

Claim 4, 15th line, after "section" phrase --, and further characterized in that the surface roughness of the inner surface of the crucible as measured by the maximum height method is no greater than R_{\max} 6.4s-- has been inserted.

Claims 5 - 8 and 21- 23 are canceled.

Allowable Subject Matter

Claims 2-4 and 20 are allowed.

Claims 1, 5 - 8, and 21- 23 are cancelled.

The following is an examiner's statement of reasons for allowance:

The prior arts of record fail to teach or suggest a crucible for growth of a single crystal including a starting material carrying section and a seed carrying section wherein the wall surface of said starting material carrying section is connected to the cone surface via a concave curved surface having a curvature radius of at least 1/10 of an inner diameter within the wall surface of the starting material carrying section, and also said cone surface is smoothly connected to the wall surface of the seed carrying section via a convex curved surface having a curvature radius of at least 1/10 of an inner diameter within the wall surface of the starting material carrying section, and further characterized in that the surface roughness of the inner surface of the crucible as measured by the maximum height method is no greater than R_{\max} 6.4s. Therefore claims are deemed allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

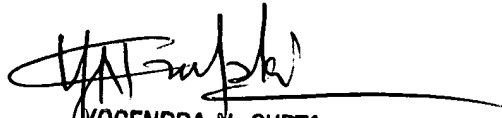
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Masoud Malekzadeh whose telephone number is 571-272-6215. The examiner can normally be reached on Monday – Friday at 8:30 am – 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra N. Gupta can be reached on (571) 272-1316. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance form a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SMM


YOGENDRA N. GUPTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700